

Paperd March 9th 1827.

An essay on
Bilious Fever

of Virginia
by
Theodorick Bland

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of the

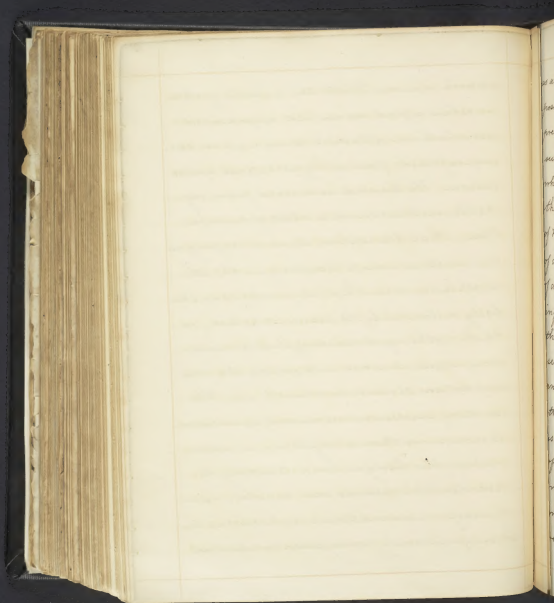
Bilious Fever of Virginia.

This is an indigenous disease which annually sweeps away more of our inhabitants, than any other with which we are afflicted. Like the inundations of the Nile it is periodical in its occurrence; but while the one, overflows the country with riches and fertility, the other, desolates it with destruction and death. Proteus like it assumes different aspects, and transforms itself into a vast variety of shapes. The disease assumes the remittent type; but although it abates, it does not entirely go off before a fresh attack ensues; or in other words, one paroxysm so quickly succeeds the other, that the patient is never free of fever. The remissions are very uncertain in their returns, periods and duration. The predisposing cause of bilious fever is

Letter from [illegible]

[The body of the letter contains approximately 15 lines of extremely faint, illegible handwriting.]

marsh miasm. With the nature of this morbid agent we are not acquainted; nor shall we attempt to wander in the unprofitable path of hypothetical speculation. We know it is evolved from vegetable substances in a state of putrefaction; that the system becomes impregnated with it while floating in the atmosphere, and that it produces in the body a liability to diseased action, so that nothing is wanting but an exciting cause, to arouse into action the predisposition already produced. — The exciting causes are numerous; as exposure to damp weather or night air: whatever weakens the body or has a tendency to disorder the *primæ viæ*; as cold, anxiety, excess in evacuations, unwholesome diet, suppression of perspiration &c. which act



as above stated, by awakening the predisposition into action. — The disease is more prevalent when calm and sultry weather succeeds heavy rains. It is more apt to arise when atmospherical heat runs high, or when the atmosphere has attained its maximum of heat. The effects of heat, or in other words of a heated atmosphere in the production of disease, have been uniformly confessed, its influence indeed has been proverbial from the dawn of medical science to the present day; hence in the time of the Greeks and Romans, a burning atmosphere and the devastations of disease were considered as invariably associated. Bilious fever is oftener met with in countries abounding with fens, stagnant pools, marshes &c from which exhalations are consequently evolved. As to the *modus operandi* of marsh

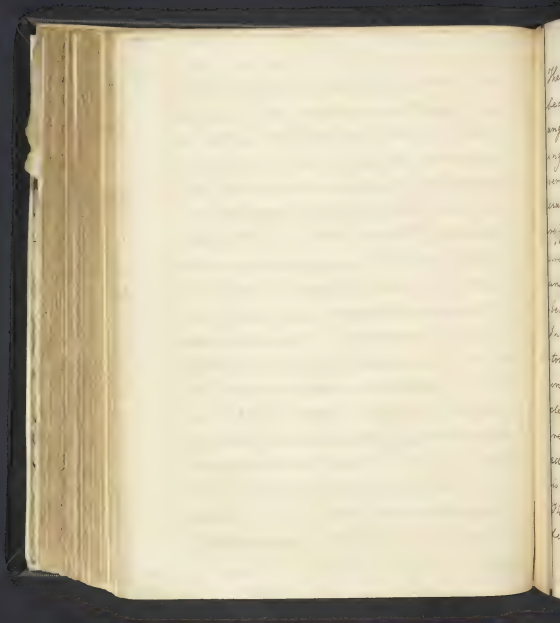
miasmata various opinions have been entertained; but it is probable the primary morbid impression is first made upon the stomach, and as the hepatic system is at this time very irritable, and by virtue of the sympathetic association existing between the stomach and liver, the impression is soon communicated to this organ, which ultimately bears the onus of the disease, and becomes the principal point of excitement. From the hepatic congestion and derangement of the secretory function, from the biliferous tubes being locked up, and engorged with viscid and depraved secretions &c we are led to conclude that the liver becomes the seat and throne of the disease, whence as from a point of action it propagates its ravages

to different parts of the system. one
biliary secretion is sometimes increased,
and sometimes diminished; for it is a
well known fact that when any gland
is over excited its secretion becomes un-
natural either in quantity or quality,
it is either increased or diminished, but al-
ways depraved.

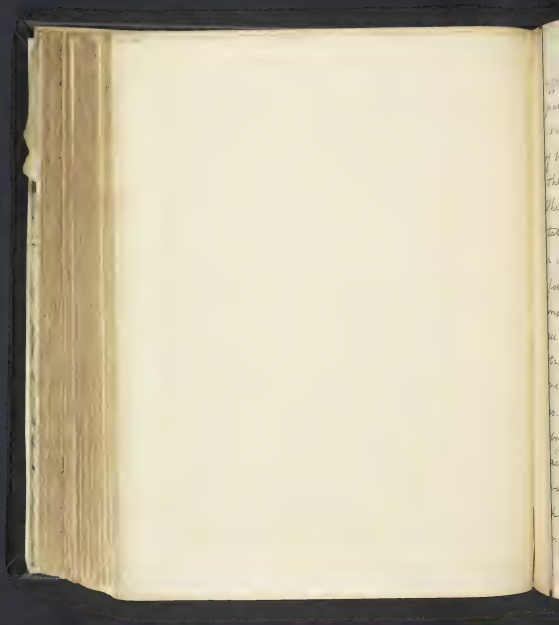
Symptoms. Preceding an attack of biliary
fever there are many premonitory symp-
toms, as heaviness and languor, a sense of an-
xiety, sighing, stretching and yawning, with
frequent fits of heat and cold. On its ac-
cession the patient complains of pain in the
head, back and side; much heat prevails
over the body, with thirst, difficulty of
breathing, throbbing of the tem-
poral arteries, gastric distress followed by vom-
iting of bile. The tongue is furred, and



the pulse quick and full. After these symptoms have continued for some time there is a considerable abatement or remission of the fever, or it not unfrequently goes off in a partial degree, by a gentle sweat imperfectly effused over the body. The remission is of short duration, for the paroxysm soon returns with the same appearances as before. After repeated exacerbations and remissions, the disease proceeds to a crisis or it appears with augmented severity. The remissions are sometimes scarcely perceptible, and then follow a host of aggravated symptoms, and the whole phalanx of danger breaks forth. The patient complains of an uneasiness over the whole body. While the cold is severe on the surface, a burning heat rages within.



The stomach is oppressed, and sometimes becomes the seat of the most intolerable anguish, at other times of a sharp gnawing pain. We have often known the liver to be affected with the most excruciating pain, when by the patient it was referred to the stomach. The umbilicus is enormously, it is tense and hard, and sometimes a fluid appears to float beneath the fingers when applied to it. In every stage of the disease, this symptom will generally be the most prominent. When the other abdominal muscles are perfectly loose and relaxed, the recti will be tense, hard and contracted. One of the most common symptoms is an inability to lay on the left side. The mind is more affected in bilious fever than any other disease, except

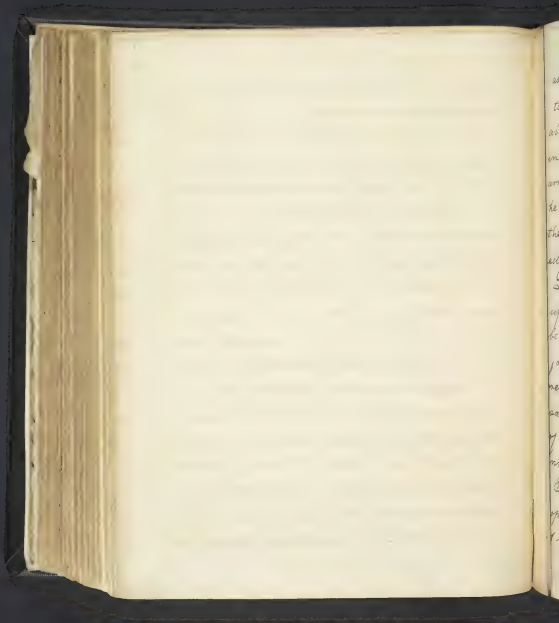


affections of the brain. Women are particularly liable to hysterical fits.

A very frequent symptom is a kind of burning in the urethra, produced by the passage of the urine through it. The patient is often affected with eructations, tinnitus aurium, vertigo, and a vomiting of bilious, yellow, porraceous, foetid and sometimes bloody and black masses takes place. The matter rejected by vomiting is sometimes aropy transparent fluid, and sometimes it resembles the black vomit. The thirst is constant, the mouth and fauces are dry and clammy, with great tightness across the chest. A complete deprivation of sight and hearing often takes place, with hemorrhages from the gums, nose and ears. The symptoms which accom-



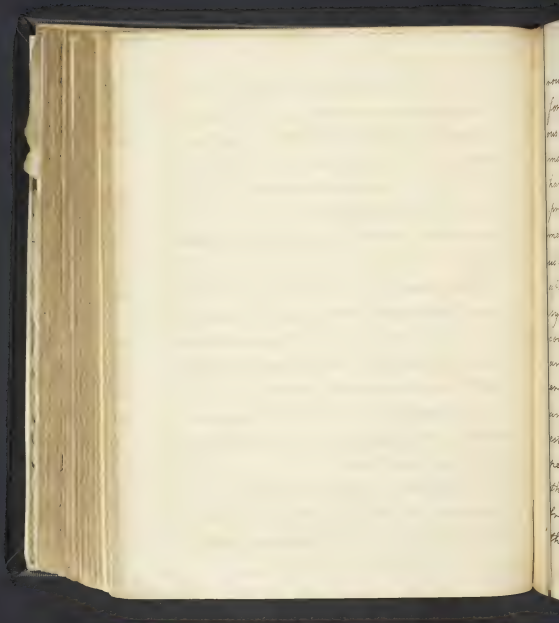
many bilious fever are various according to the season of the year, the constitution of the Patient &c. The language of the justly celebrated Hennen (when speaking of injuries of the head) is so appropriate that we can scarcely refrain from quoting it. "The young surgeon, (says he) who for the first time witnesses a series of injuries of this description, will at every step have something to unlearn; he will find symptoms so complicated, contradictory, and insufficient, to give any rational clue to their causes; diagnostics, of the truth of which he had read himself into a conviction, so totally unsupported by the results of practice; and the sympathies he was led to look for



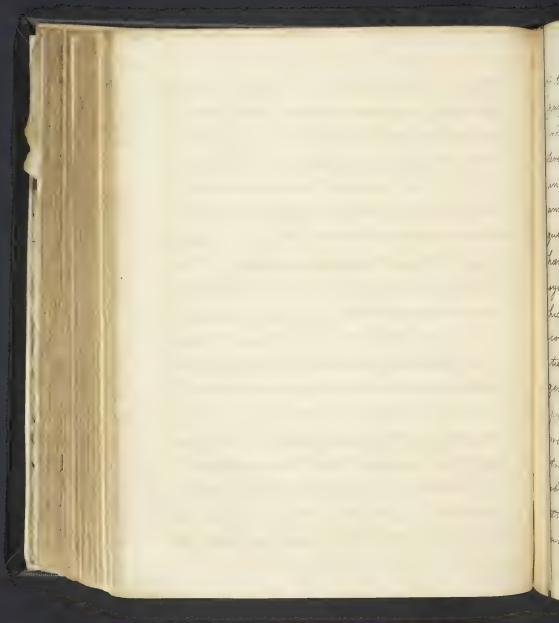
, as infallible accompaniments of certain states of disease, so often wanting altogether, that he will probably be inclined to relinquish the hope of ever arriving at a correct theory, or at least, he will enter the clinical ward with the pride of science considerably subdued."

Diagnosis.-By attending to the principal features of the disease, we shall be able to distinguish it from all others, for they are generally prominent and well marked; as the vomiting of bile, salton rep of the skin &c. The season of the year should likewise be taken into consideration.--

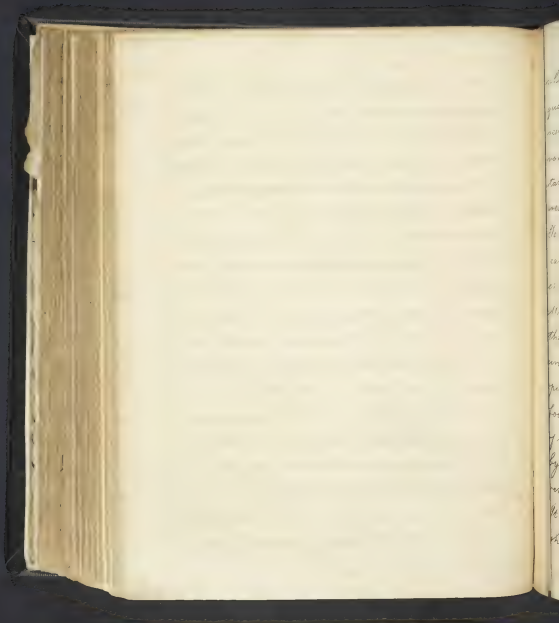
Prognosis.-- In making up our opinion as to the probable termination of the disease, we should exercise tho-



rough deliberation, and mature reflection
for the symptoms are so variable, so vari-
ous and so complicated, although we at one
moment may be elevated with hope, and
have our anticipations feasted with the
prospect of a speedy recovery, the next mo-
ment, may blast all our hopes, and plunge
us into the gloom of melancholy. - When
after a few days, there is a remission of
symptoms, and the stomach becomes
composed, when the pulse is soft, slow
and natural, the urine deposits a cut-
eritious sediment, the mind is calm,
and the remissions distinct and well
established, the faiver will be the pros-
pect of a recovery: but the safety of
the patient is rather to be estimated
from the mildness of the exacerbations,
than from the length and completeness



of the remissions. When there are violent palpitations of the heart, and much anxiety when the natural tone of the voice is altered, when the pulse is frequent very weak and irregular, when the respiration is anxious and quick, interrupted with frequent sighs and groans, when there are hæmorrhages from different parts of the system, and if upon these symptoms a hiccup supervenes, especially if it is accompanied with a vomiting, the patient may be considered in great danger. Delirium, or a succession of particular ideas, particularly false vision is among the worst symptoms. Deafness on the contrary we may hail as a very favourable omen. Involuntary twitchings of the muscles, picking at the bed clothes are generally followed by convulsions.



which carry off the patient. If a colliquative diarrhoea take place, if the matter rejected by vomiting is similar to that which vomits, or if a relaxation of the sphincters take place these symptoms may be considered the harbingers of death...

To the head of prognosis belong the critical days, or the days in which the great changes of fevers most frequently happen. Many Physicians have attempted to assign the cause of the changes which fevers undergo on these days. The most ancient opinion, and that of Hippocrates was founded upon the Pythagorean doctrine of numbers. This doctrine was rejected by Galen, who thought the crises of fevers depended upon lunar influence. It is perhaps an arcanum nature, which we shall not attempt to unravel, for fear we



should suffer the punishment of him who
 stole fire from Heaven. The critical days
 are the third, fifth, seventh, ninth, ele-
 venth, fourteenth, seventeenth and twentieth,
 and according to some the twenty-
 first. Every Practitioner who has noti-
 ced the progress of bilious fever, has cer-
 tainly had occasion to remark that
 there is more or less tendency to a re-
 mission on certain days, which howe-
 ver is not so distinct, as those of Hip-
 pocrates, owing perhaps to climate, con-
 stitution or some other causes. From the
 universality of tertian and quartan
 periods in intermittents, we cannot
 doubt that there is in the animal
 economy a tendency to observe such a
 period, and the critical days just
 mentioned consistent with a tendency



make them tertian or quartan periods. The periods are not promiscuously mixed, but occupy constantly their different portions in the progress of the disease; or that from the beginning to the eleventh day, a tertian takes place, and from the eleventh to the twentieth, a quartan is observed. What determines the period to be changed upon the eleventh day we do not know.

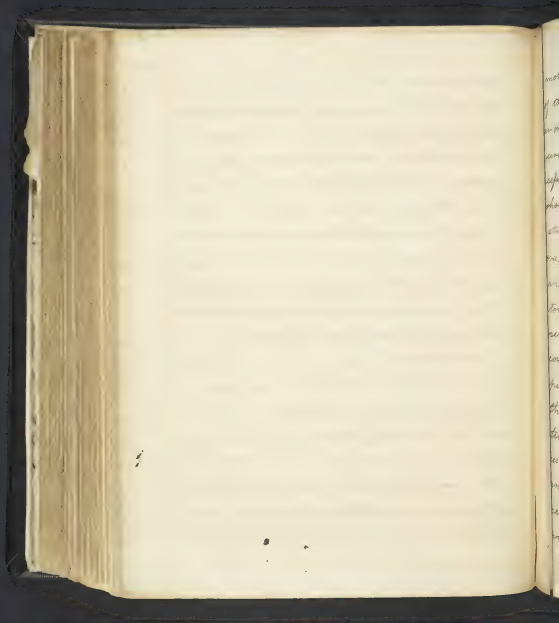
Dissections show that the stomach, liver, spleen, pancreas, mesentery and omentum are inflamed, enlarged, indurated or sphacelated, the gall bladder is turgid and an unusual quantity of bile is accumulated in the stomach and intestines; the liver is engorged with blood, and the vena portarum



and its branches enlarged and congested. The brain is congested with blood or extravasations of blood and matter.

In fact from the strict bonds of sympathy which link the stomach and liver (the primary seats of the morbid impression) with the different parts of the system, we may infer perhaps without stretching our credulity too far, that the whole system becomes involved and suffers.

Treatment. The inflammatory symptoms generally preponderate and run high, consequently venesection is loudly called for, and imperiously demanded. By its timely application, we will curb the violence of the disease, strangle it in its forming state, lessen the action of the heart and arteries, moderate the rapid



motion of the fluids, and abate the violence
 of the fever. Venesection either to a great-
 er or less quantity, as the symptoms and
 circumstances indicate, is absolutely ne-
 cessary, and the quantity to be taken
 should be regulated by the age and
 strength of the patient, the degree of pleth-
 ora, the fulness and hardness of the pulse,
 and the violence of the fever and its symp-
 toms. We should always make it a rule
 never to prescribe by the ounce, but ac-
 cording to the effect produced. If the
 pulse rise after the first bleeding, or if
 the fever continue still high, the opera-
 tion should be repeated. In some instan-
 ces the pulse is *oro usque ad malā*, is weak
 and depressed, under these circumstan-
 ces venesection would obviously be im-
 proper. The nausea and vomiting which

X



so often attend this season will frequently be checked by blood-letting, it makes the solids easier to be moved by purgatives, promotes the action of diaphoretics, disposes the body to spontaneous sweat, to perspire in every part, and especially the head and side, abates the burning heat of the skin, destroys the morbid associations of the blood, revives over-come coma and delirium, and produces a disposition to sleep. We will thus likewise prevent chronic affections of the liver, and all the different states of dropsy which often follow the disease.

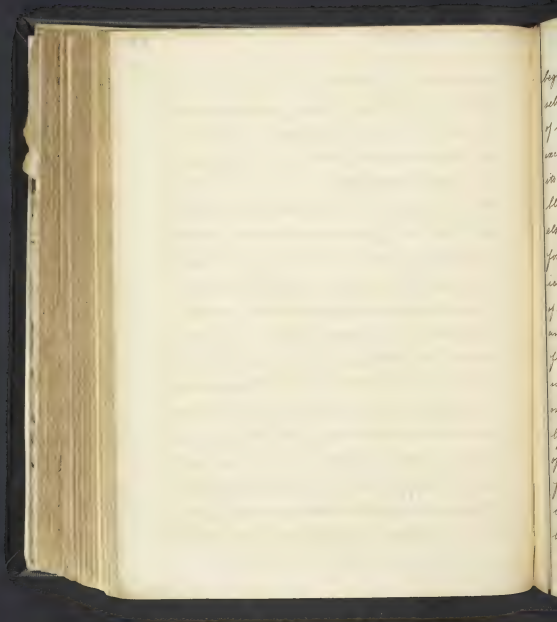
Measures should now be taken to cleanse the whole intestinal canal and primæ viæ, and we should commence with an emetic. Tartar emetic is preferable to all others unless there is too much



irritability of the stomach. We have already demonstrated that bilious fever is a result of sympathy having the primary link of its chain in the stomach. To expel therefore the offending cause, or to subvert the morbid impression in its forming state before it becomes invigorated, diffused and fixed, and to destroy the disease at a single blow, sometimes can be preeminently high. We have also demonstrated that the liver is very particularly affected, and seriously implicated, that its integrity of function is destroyed, and that it becomes the seat of a collection of vitiated and depraved bile. The vena portarum is frequently enlarged, and the blood stagnates in its branches. We cannot with more



certainly remove this stagnation and bilious congestion than by emetic medicines; for when these excite vomiting, the liver is as it were in a press, where it is agitated by alternate concussions. By pressure and concussion, the blood is forced out of its small vessels, while the bile is pushed into the intestines, and from thence discharged. The accumulation is so great and rapid, that to vomit once is seldom sufficient, for after a short time such a fresh accumulation takes place, that a paroxysm of vomiting occurs as plentiful as before. Emetics promote the circulation of the fluids, rouse the nervous energy, and throw into action the capillaries throughout the system; and thus it is that the fluids which had



begun to stagnate in the extreme vessels, are pushed onward in the course of the circulation. They equalize the excitement of the system, by inviting its excessive degrees of action from the blood. reglets to the stomach and bowels, and weaken and break down the force of the disease, if they do not eradicate it. We thus clear the stomach of irritable contents, relieve nausea and vomiting, and prepare the way for other medicines. The disease is sometimes arrested in its forming state, or cut short before it becomes too deeply raccinated; the morbid association of the system are broken up, and the first link of the chain severed. If it survive this blow its energy will be much diminished. After the



operation of the emetic, we will generally find exhilaration of spirits, and renovated energy, headache relieved, a recrudescence of the temperature of the surface, with a relaxation of the extreme vessels, which restores quietness and hastens a critical solution.

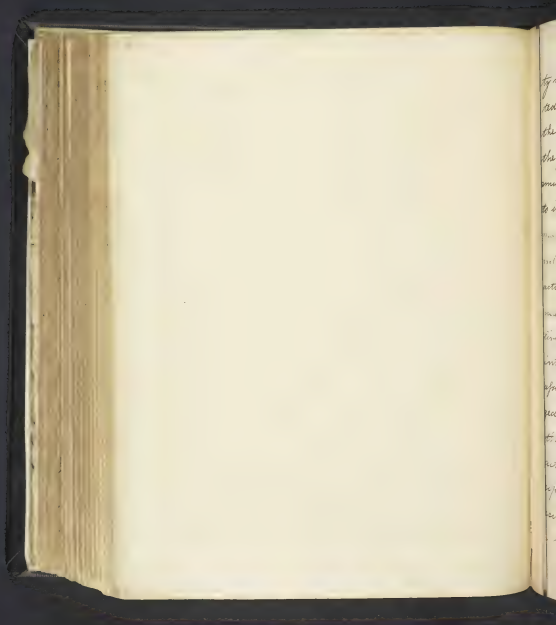
Cathartics are next in utility to emetics. There are various morbid accumulations which are sufficient to confirm the disease when excited into action. It is of primary importance to expel these morbid collections and all depraved and vitiated juices from the intestinal canal as soon as possible. The best purgative to commence with, is a combination of calomel and gamboge, to be succeeded (if there is much arterial action) by some of the saline



preparations, as they have more influence
 over the blood-vessels and thereby reduce
 vascular ^{action} by abstracting from the general
 circulation a considerable portion of fluid.
 If from irritability of the stomach, or any
 other cause, Gamboze should not be taken,
 the calomel may be administered either
 alone or in combination with rhubarb
 or jalap. Given in either way, it proves
 very effectual in carrying off putrid, fec-
 ulent matter from the intestines. If
 there is a sufficient reduction of vascu-
 lar action the calomel &c should be
 worked off with oil. We should contin-
 ue to purge until the tongue becomes
 clean, the abdominal muscles loose and
 relaxed &c These medicines by stimula-
 ting and unlocking the passages of the
 liver cause the bile to flow through



it; by relaxing the surrounding parts they make the blood circulate more freely and open the excretory and secretory ducts. In protracted cases we should purge with calomel until dark, tarry, fatid stools appear, for often the intestine has a kind of investment over which faeces pass, the investment at the same time sticking firmly to the intestinal surface and remaining undisturbed. To remove this matter small and repeated doses of calomel, so small as to linger in the intestines answer well. We have stated that there is hepatic congestion and visceral derangement, that there is either a redundancy or deficiency of the biliary secretion, and that the tubes of the liver are engorged with elevated secretions. We cannot with more certain-



ty remove the effects we have enumerated than by administering mercury in the above-mentioned manner, for it lessens the general tension of the liver, frees and emulges the ducts, and restores the organ to its integrity of function. Unless we make some impression upon the liver we will not effect a cure, for on the healthy action of this organ, the healthy action of nearly all the other organs depend. The liver, stomach, spleen, pancreas and intestines are so intimately united and associated, that neither can be deranged in function, without drawing in the others to a participation. Mercury acts upon the liver precisely as it does upon the salivary glands. The medicine should be discontinued as soon as a mercurial foetor is detected in the



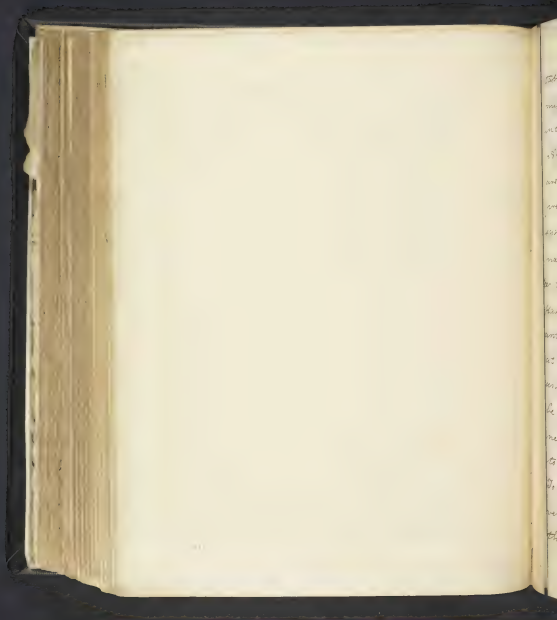
breath, and the gums become red and
spongy. As the pyralism comes on the
train of morbid symptoms will propor-
tionably subside. It often happens that
there is a large collection of air in the
bowels which causes the abdomen to
swell enormously; if the hand is appli-
ed to it a fluid appears to roll beneath.

Under these circumstances Spruce of
turpentine displays invaluable effects,
almost always procuring relief. In ca-
ses where it is necessary to purge and we
are afraid of inducing too much debility
this medicine may be used with deci-
ded advantage, for it produces cop-
ious evacuations and at the same time
supports the sinking strength of the
system. Nothing will with more certain-
ty arrest the hiccup which is so often an



attendant upon the latter stages of the disease. In obstinate constipation anemata are highly useful, but they are generally resorted to, to hasten the tardy operation of other medicines, or when there is great irritability of the stomach.

In our curative process cold effusions should not be passed over. The best and least hazardous manner of using this remedy is to sponge the body with cold water. This should be done during the height of the paroxysm; or where there is much activity of pulse, great heat over the body, Headach and delirium. The effects of this remedy are very conspicuous; for it quiets the irritability of the blood vessels, and produces a gentle diarrhoea, which induces a disposition to sleep. In this way we sometimes cut short the paroxysm, as



establish distinct and well marked remissions and make the disease assume the intermittent type.

After procuring proper evacuations, opium is of the utmost utility. When properly prescribed, they calm the agitations of the system, recruit the exhausted energies of nature, and soothe the distresses of the patient: they produce a sweet dream in the night, and swell the mind with pleasing anticipations for the future. Should it at any time be necessary to give opium and we are afraid of its effects, the acetate may be substituted, for it appears to possess nearly every property of opium and to be destitute of its stimulant effect. To assist in allaying the violence of the fever we should be careful to remove every thing which may aggravate it. The pa-



tient should be kept perfectly still and quiet, the covering of his bed should be light and his chamber of a moderate temperature by the free admission of air. From time to time, he should take some acidulated drink, as lemonade, sod water &c.

Strict attention should be paid to the state of the mind, for its influence upon disease is truly astonishing -- c. H. though the patient may be upon the very threshold of destruction, still if the mind is elevated with hope, death will be spoiled of its victim, and the body cleared to sensibility. Attention to the mind then, is the best Panacea which can be recommended.

Blisters should be applied to about this time. From their stimulant effect



if used before venesection, emetics and
purgatives, they aggravate every symp-
tom they were intended to relieve.

When applied at a proper time they restore
the circulation, which is partial, and soon
quietly broken up. quiet the commotions
of the system, and annihilate the morbid
association upon which the disease depends.
They are the most powerful antispasmod-
ics in the whole. *Calonia medica*, and at
the same time are stimulant and an-
odyne, and are particularly useful when
there is much pain, when the spirits
flag, when the pulse is low and list-
less and when there is a tendency
to delirium. The blister should be
applied to the head, over the liver to
the vertebral column &c according to cir-
cumstances. We have often seen patients



with nearly every symptom, of trismus completely relieved by applying a blister all the way down the spine. After the blister procures its effect the disease assumes a new aspect. The countenance which was gloomy, melancholic and sad, becomes more cheerful and animated; the pulse which was small, weak, tremulous and sinking, becomes soft, open and vigorous; the extremities which were cold and pallid have a gentle warmth diffused over them; the extreme vessels which were torpid and constipated become relaxed and open, and the liver which was tense congested and occluded with blood, becomes diminished in tension, and the blood glides gently through it. These are some of the important advantages derived from a blister, and we believe



in the treatment of bilious even it is a
sine qua non. The *modus operandi* of a
 blister is perfectly intelligible. "If the stim-
 ulus is fluxus? The more excitement is
 accumulated in one part, in the same
 ratio is it destroyed in others. —

Cataplasms in some cases should be ap-
 plied to the wrists and feet, or to the
 arms and thighs.

"We now pass to the consideration of oli-
 aphoretics. These are a very important class
 of medicines, but in using them we must
 be ~~more~~ directed by judgment,
 tempered by discretion. They are either
 internal, or external, but appropriated
 to different cases. When we wish to
 bring on a crisis in the fever, the
 antimonials are decidedly preferable.
 Tartar emetic is usually given for this



purpose in the dose of $\frac{1}{8}$ of a grain; the dose to be repeated according to circumstances. The antimonials, produce a specific impression upon the stomach, and destroy the roots of the disease, consequently it must wither and decay. Cases will sometimes occur where, from irritability of the stomach, true medicines cannot be taken. In such cases we resort to some of the kindred articles, as the Saline mixture; this reduces the pulse and quiets irritability. If we wish to increase its diaphoretic power we may add Sweet Spirits of nitre, or antimonial wine. The diaphoretics denominated the refrigerant are highly useful. These are almost all the neutral salts. Nitre is most commonly used, either alone or in combina-



tion with tartar emetic or calomel, & with
 In making the external application of
 next we should do it in the form of vapour
 by immersing wet bricks in vinegar or
 water and while the vapour is rising
 wrap them up and apply them. Three
 or four applications will produce a co-
 pious diaphoresis. - Diaphoretics cause
 the blood to move gently through the vis-
 cera, obviate or remove deep seated con-
 gestions, subvert the morbid condition
 of the capillaries, and produce upon
 them an impression of the most salu-
 tary kind. There will be an equal dif-
 fusion of temperature, a restoration of
 the lost balance of the circulation,
 and a total subsidence of all febrile
 commotion.

As soon as the fever shows a disposition



to yield, and upon the slightest and shortest remission bark should be given. The earlier it is commenced with, the more speedy and complete will be the cure. Although it may not be sufficiently efficacious - first to prevent a fresh attack, yet it will always mitigate the subsequent returns of the fever, and ultimately bring about distinct and well established remissions. When it can not be retained, from irritability of the stomach, it should be combined with some aromatic, or given by injection. As much ~~rest~~ should be taken during the remission as the stomach will well bear. During the remission and subsidence of the morbid action, the activity of exhibition, is thought by some to produce more prompt and complete cures



than the crude medicine. In using it we conform to the regulations adopted in relation to the bark. Next in efficacy to Peruvian bark is the *seguentaria Virginiana*; in some cases it is still better adopted than bark, in as much as it rarely offends the stomach, and may be taken in obscure states of the disease when the remissions are very slight and scarcely perceptible. The best preparation is the cold infusion. When the remedies already mentioned have failed much confidence is reposed in mercury urged to a salivation, indeed it is the only resource of safety, the only loop upon which to hang a hope. When the disease resists every other mode of treatment and continues for some time, it is reasonable to suppose the existence of some visceral derange-



ment, which can only be relieved by mercury, should the disease then not give way after the remedies which we have recommended have been fully employed, a salivation should be induced and kept up for some time. For this purpose, from five to ten grains of calomel combined or not with opium, should be administered every four or six hours until salivation is well raised, when there will be a remission of all the febrile symptoms and safety secured to the patient.

During the course of the disease as little drink ~~should~~ should be taken as possible, for if we suffer the stomach to be obliged, retching and vomiting will come on and aggravate all the febrile symptoms. Large quantities of liquors only weaken and oppress the stomach without



allaying thirst. The drinks should be mild and not in the least stimulating, as lemonade, apple water, barley water, rice water, buttermilk &c which should in a great measure constitute the diet of the patient. As convalescence becomes established the patient should be removed from the room in which he has been confined, or every thing taken from his sight which will remind him of his illness; for such things being constantly before him, keep up an association of ideas, relative to the same which has, rapid and have a great tendency to prolong convalescence. A little exercise should be taken, as gestation, leaning on horse-shoe but walking as it is accompanied with a uniform contraction of the muscles and promotes the circulation, is preferable



to all other modes of exercise.

Exposure to marsh miasmata and all those causes which are favourable to their operation should be avoided.

